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I. *Any surface may (without being wholly inextensible) have at each point one or two inextensible directions.*

II. *If a surface have at each point three or more inextensible directions, the surface is wholly inextensible.*

III. *If the curves of flexure be inextensible, the extension of an indefinitely small arc of a curve, divided by the arc itself, will at each point, and for a given law of displacement, vary inversely as the radius of curvature of the normal section passing through the tangent to the curve.*

Professor Allman read a paper on the structure of hydra.

The substance of *hydra* consists of two perfectly distinct strata,—an external, which may be called the *ectoderm*; and an internal, to which the name of *endoderm* may be given. The ectoderm is composed of cells of a more or less spherical figure; the greater number of these cells possess the power of developing, in their interior, *thread-cells*. Only one thread-cell is generally developed in each cell of the ectoderm.

The endoderm is composed of elongated pyriform or clavate cells, with their long axes perpendicular to the surface, and developing free, spherical, distinctly nucleated cells within them; several of these free cells being developed in each cell of the endoderm. Of the free cells thus developed in the interior of the endodermal cells, some are filled with colourless and transparent contents, while others contain a deep-brown granular matter. In this structure we cannot avoid recognising a true glandular system; the free cells being true secreting cells developed in the interior of mother-cells, and producing, by a process of genuine secretion, the brown granular matter, which may be viewed as representing the biliary secretion of the higher animals.

The endoderm and ectoderm are closely united to one another immediately round the mouth; in other parts of the body they are very easily separable. The cavity of each tentacle is